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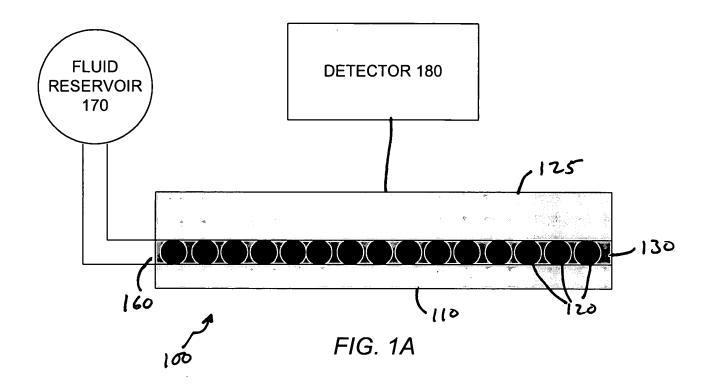
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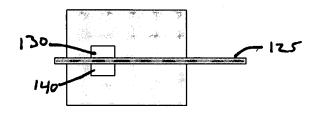


FIG. 1B

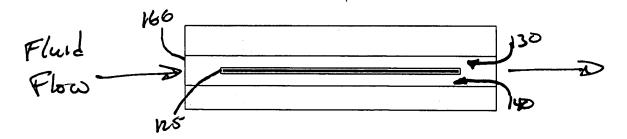


FIG. 1C

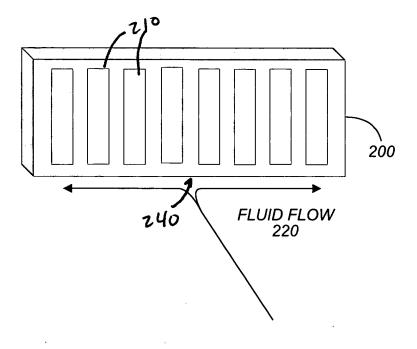
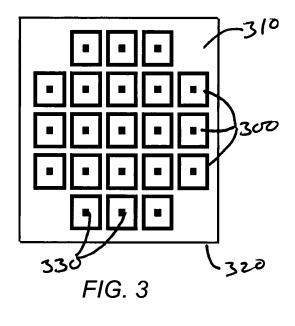


FIG. 2



# Analyte Flow: Normal vs. Composite Sensors

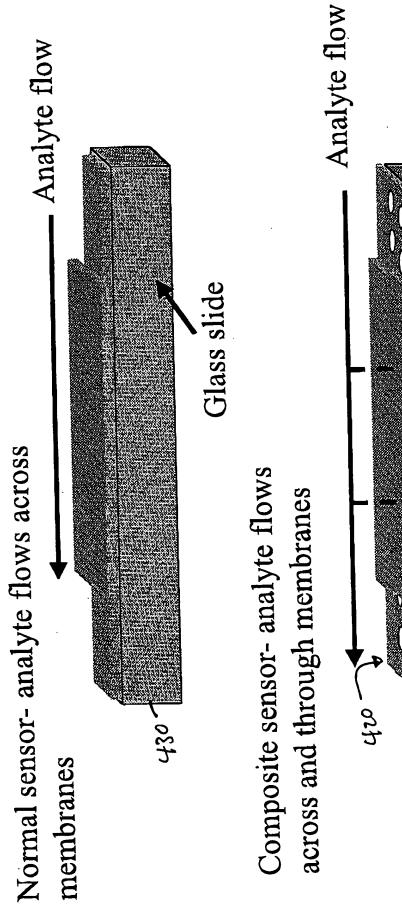
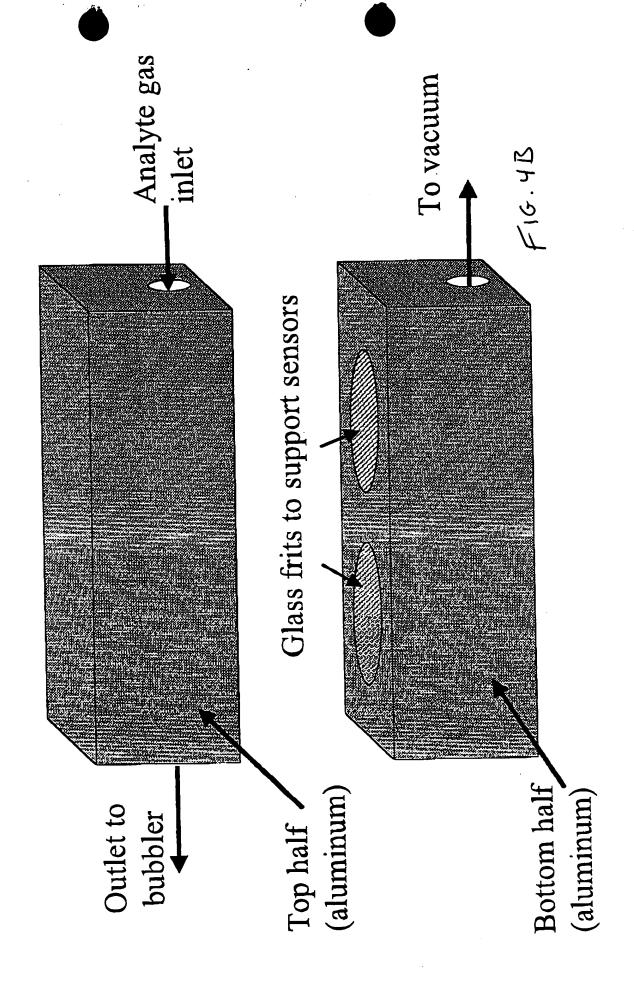
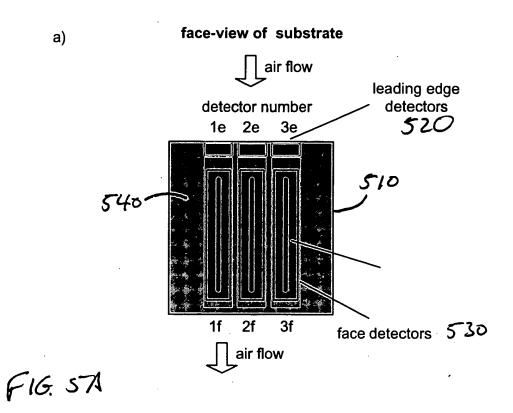


FIG.4 A 410

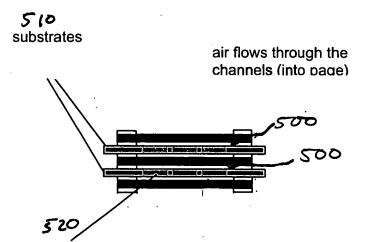
## Schematic of Apparatus



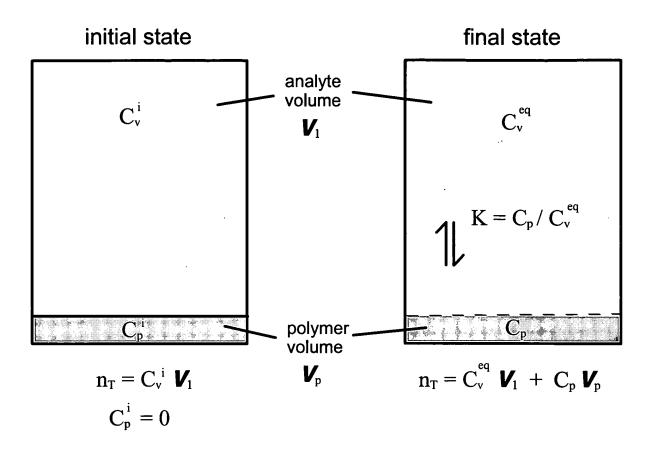
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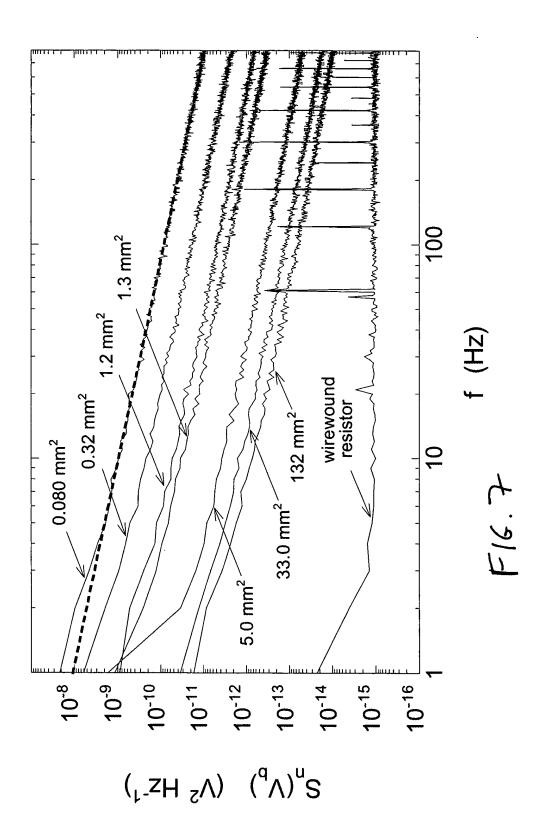
### b) leading edge-view of 2 substrates

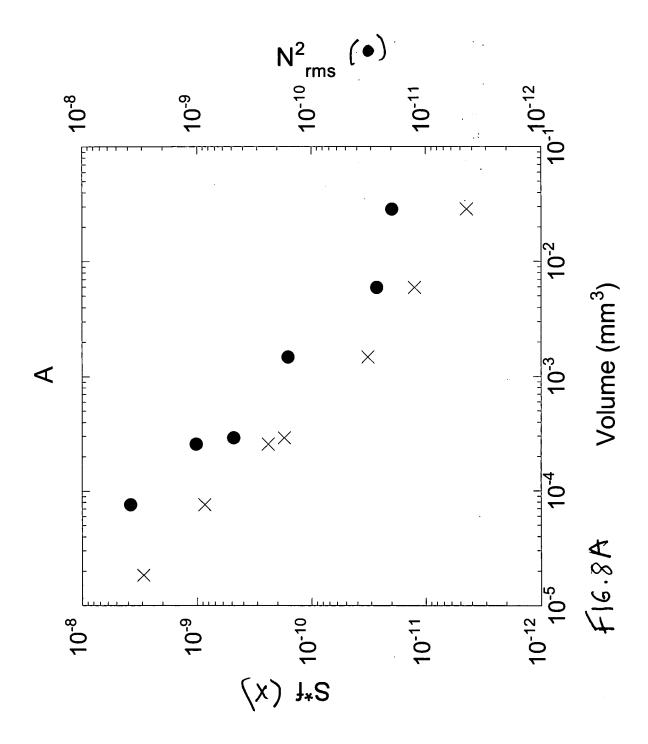


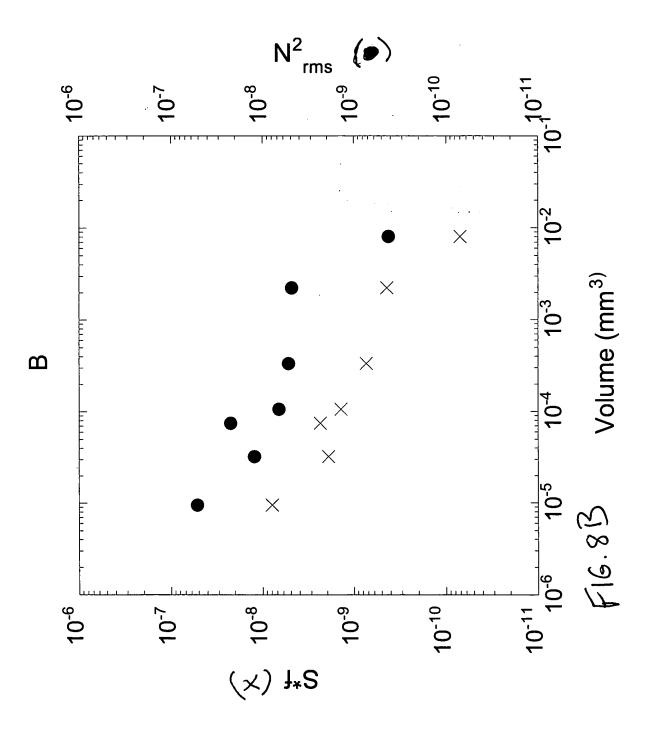
F16. 5B

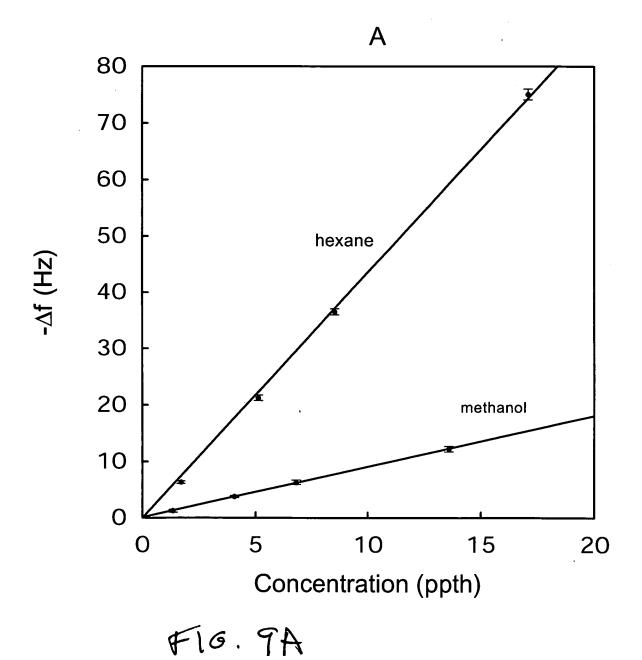


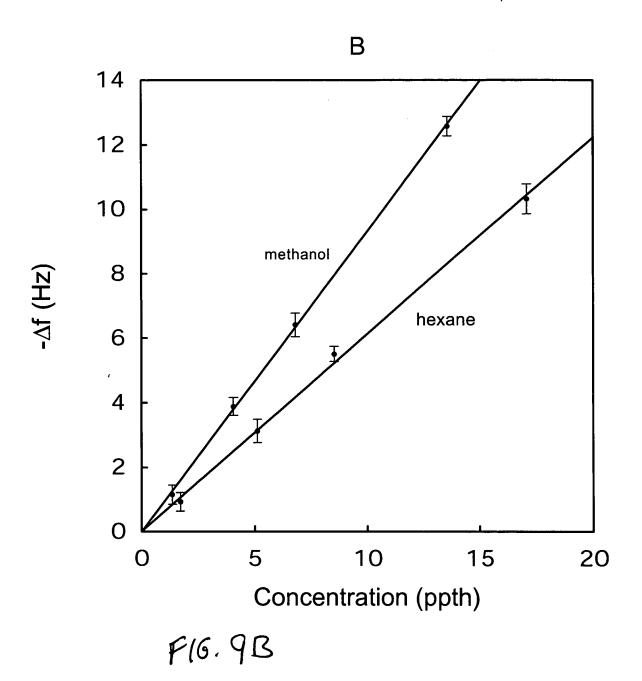
$$\Delta V_1 = -\Delta V_p \sim 0$$









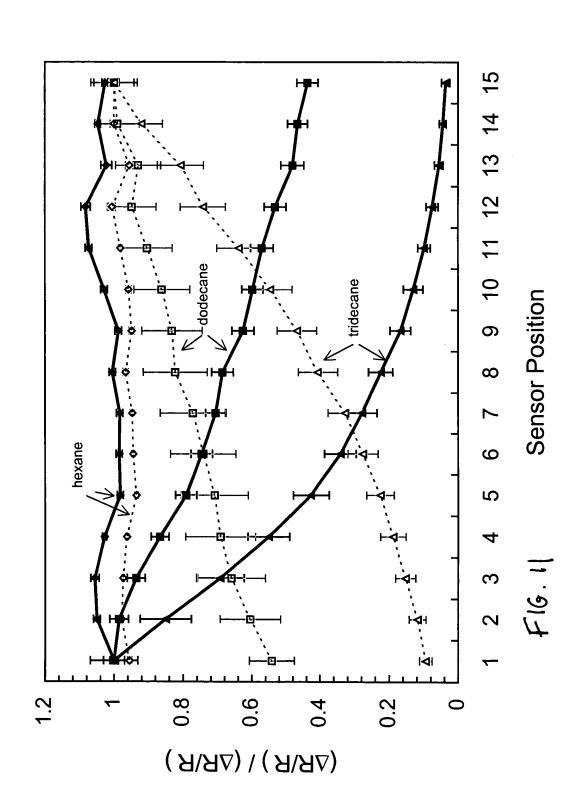


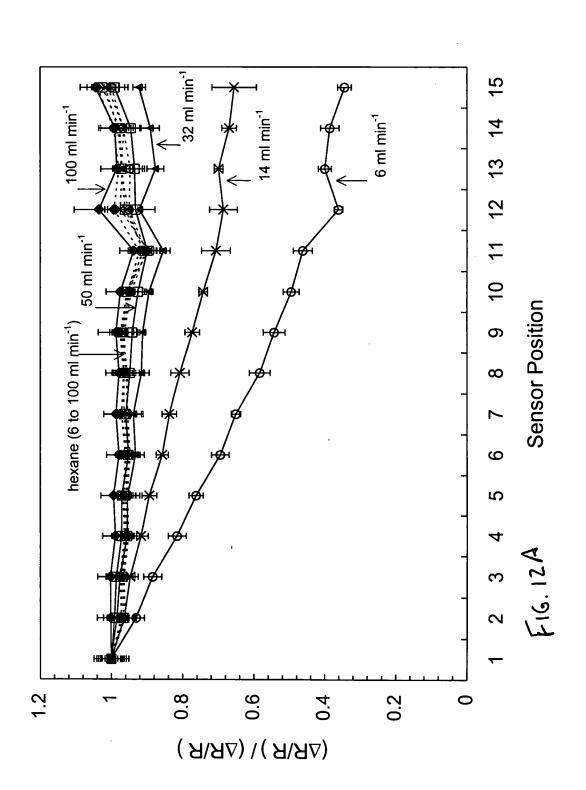
Responses, Noise, and S/N for two Types of Polymer-Carbon Black Composite Detectors in the Configuration of FIGS. 5A and 5B.

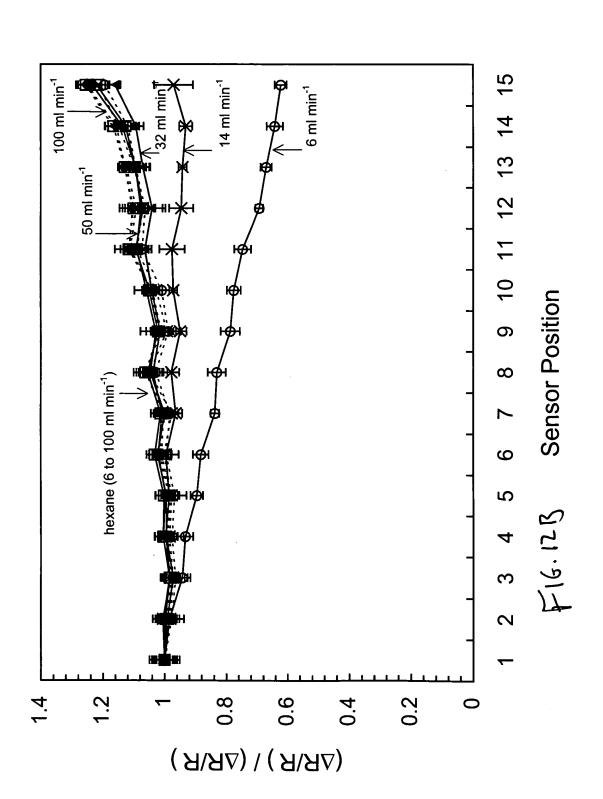
Analyte	Vapor Pressure of Pure Analyte		log Partition Coefficient (log	<b>a</b> ∑	Stack Assembly		∆R/R <sub>t</sub>	ΔR/R <sub>b</sub> x 100			N Sm.N				Ø	S/N	
			PCL	PEVA		<b>a</b>	PCL	8	PEVA	PCL	<b>મ</b>	<b>a</b>	PEVA	ď	PCL	8	PEVA
ዄ	Р° (Топ) РРМ <sup>с</sup>	ъМ				edge q	face	edge	face	edpe	face	edge	face	edge	face	edge	face
hexane 1.2	1.28*102 1.71*105	.71*10 <sup>5</sup>	1.65	2.23	∢	1.4±0.2	1.07±0.03	3.3±0.1	3.5±0.6	(1.5±0.7)*10 <sup>-3</sup>	(1.9±0.5)*10 <sup>-4</sup>	(5±1)*10 <sup>-4</sup>	(8±2)*10 <sup>-5</sup>	13±7	60±14	73±20	460±200
					80	1.1±0.4	0.77±0.04	3.6±0.3	2.5±0.1	(2±1)*10 <sup>-3</sup>	(3.2±0.8)*10 <sup>-4</sup>	(9±2)*10 <sup>-4</sup>	(1.3±0.3)*104	5±2	26±9	44±12	200±45
				'	U	1.3±0.2	1.17±0.08	2.8±0.3	2.4±0.1	(1.2±0.6)*10 <sup>-3</sup>	(1.8±0.2)*10 <sup>-4</sup>	(4±2)*10 <sup>-4</sup>	(2.7±0.9)*10 <sup>-4</sup>	23±23	100±60	77±25	100±37
					mean	1.3	1.0	3.2	5.8	2*10-3	2.3*10*	6*10*	1.6*10⁴	4	2	65	260
methanol 1.02*10 <sup>2</sup> 1.36*10 <sup>5</sup>	12*10² 1.	36*10 <sup>5</sup>	2.26	1.98	∢	2.4±0.2	2.7±0.1	2.0±0.4	2.1±0.5	(1.4±0.8)*10 <sup>-3</sup>	(2.0±0.5)*10 <sup>4</sup>	(5±1)*104	(9±2)*10 <sup>-5</sup>	23±12	140±42	42±10	270±120
					89	3.3±0.5	2.4±0.2	1.8±0.3	1.61±0.08	(3±1)*10 <sup>-3</sup>	(3.0±0.6)*10 <sup>4</sup>	(9±2)*10 <sup>-4</sup>	(1.5±0.3)*10 <sup>-4</sup>	14±5	80±16	21±5	120±25
				,	υ	2.6±0.8	2.8±0.2	1.1±0.2	1.2±0.1	(1.2±0.8)*10 <sup>-3</sup>	(1.3±0.7)*10 <sup>-4</sup>	(4±2)*10 <sup>-4</sup>	(2.6±0.9)*10*	33±22	260±110	28±11	50±17
•					mean	2.8	2.6	9:	9.1	2*10 <sup>-3</sup>	2.1*10*	6*10*4	1.6*10*	23	160	93	140
dodecane 9.71*10 <sup>-2</sup> 1.29*10 <sup>2</sup> 4.77*	1*10'² 1.	29*10²	4.77	5.35	٥	1.6±0.2	1.16±0.03	3.7±0.1	3.6±0.6	(1.3±0.6)*10 <sup>-3</sup>	(2.0±0.4)*10 <sup>4</sup>	(5±1)*10 <sup>-4</sup>	(9±0.3)*10 <sup>-5</sup>	15±7	60±13	76±21	440±170
					8	1.2±0.4	0.88±0.07	3.8±0.3	2.6±0.1	(3±1)*10 <sup>-3</sup>	(3.2±0.9)*10 <sup>-4</sup>	(9±2)*10*4	(1.4±0.2)*10*	5±2	30±10	45±14	190±35
				1	٥	1.6±0.2	1.25±0.04	3.4±0.1	1.3±0.2	(1.2±0.8)*10 <sup>-3</sup>	(9±5)*10 <sup>-5</sup>	(4±2)*10*	(2.5±0.7)*10 <sup>4</sup>	32±32	150±64	100±41	54±21
					mean	1,5	Ţ	3.6	2.5	2*10 <sup>-3</sup>	2.1*10*	6*10*4	1.6*10*	17	2	73	230
hexadecan 9.11*10 <sup>-4</sup>		1.21	6.70	7.35	∢	0.3±0.2	0.01±0.09	0.26±0.09	0.01±0.01	(1.4±0.9)*10 <sup>-3</sup>	(1.9±0.3)*10 <sup>-4</sup>	(5±1)*10*	(8±3)*10-5	3±2	1#1	6±2	242
					8	0.3±0.3	0.02±0.03	0.4±0.1	0.02±0.04	(2±2)*10 <sup>-3</sup>	(3.1±0.9)*10 <sup>4</sup>	(9±2)*10*	(1.4±0.3)*10 <sup>-4</sup>	2#1	#	5±2	1±3
				1	٥	0.3±0.2	0.03±0.03	0.3±0.1	0.04±0.07	(1.1±0.7)*10 <sup>-3</sup>	(1.2±0.6)*10 <sup>4</sup>	(4±2)*104	(2.3±0.7)*104	5±4	4±4	8±3	2±3
					mean	0.3	0.02	0.3	0.03	2*10*3	2.1*10*	6*10*	1.5*10*	ဗ	2	9	2

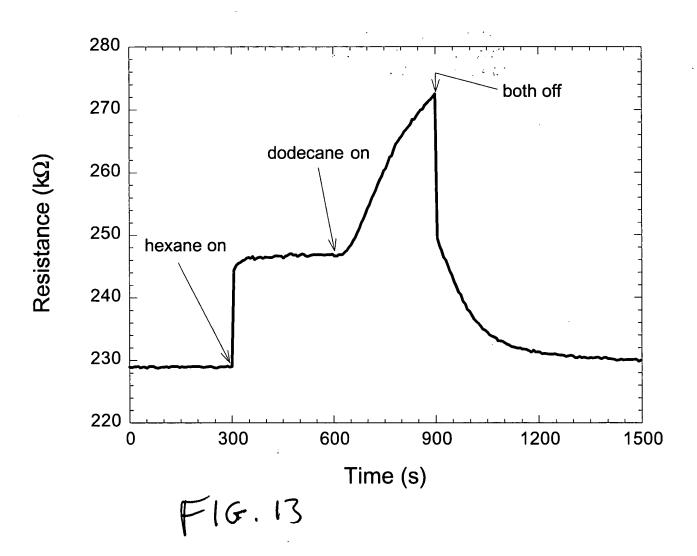
each value representing 30 vapor/polymer interactions. The experiment was repeated for 3 independently prepared stack assemblies (A,B,&C). The depicted in FIGS. 5A and 5B. The uncertainties are expressed as 95% confidence intervals. e) Values were estimated based on measurements of a) Data were averages of 10 randomized presentations of the 4 analytes each at P/Po =0.050, across 3 copies of each of the 2 detector types, with data represent responses after 200 s of exposure to analyte. b) Determined from quartz crystal microbalance measurements on unfilled polymers. K for hexane and correction for the differences in vapor pressure between hexane and the alkane of interest assuming constant activity coefficients c) Vapor pressure of analyte expressed in ppm of air at 294 K. d) Edge refers to the leading edge sensors and face refers to the face sensors for the sorption of the alkanes into a given polymeric phase.

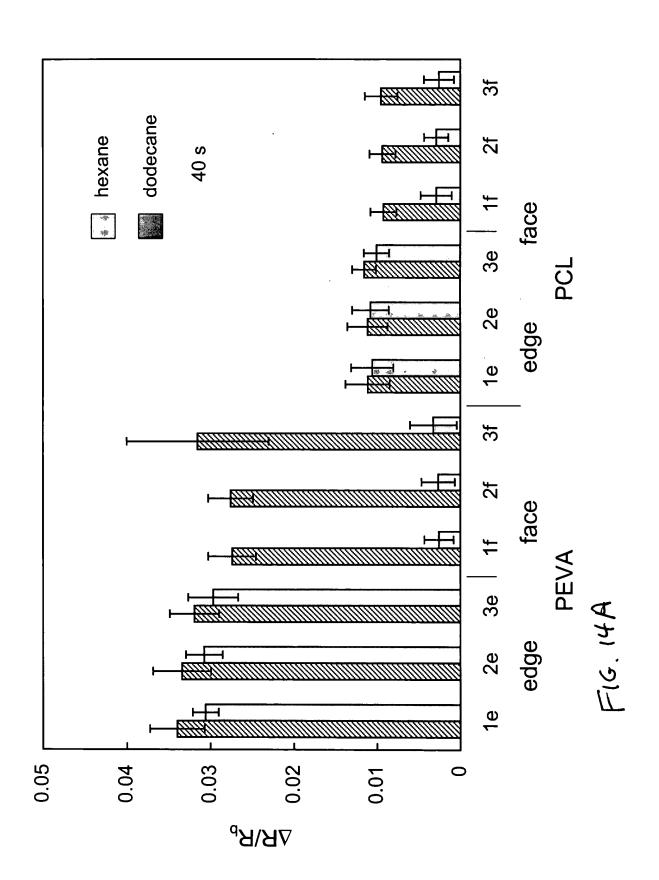
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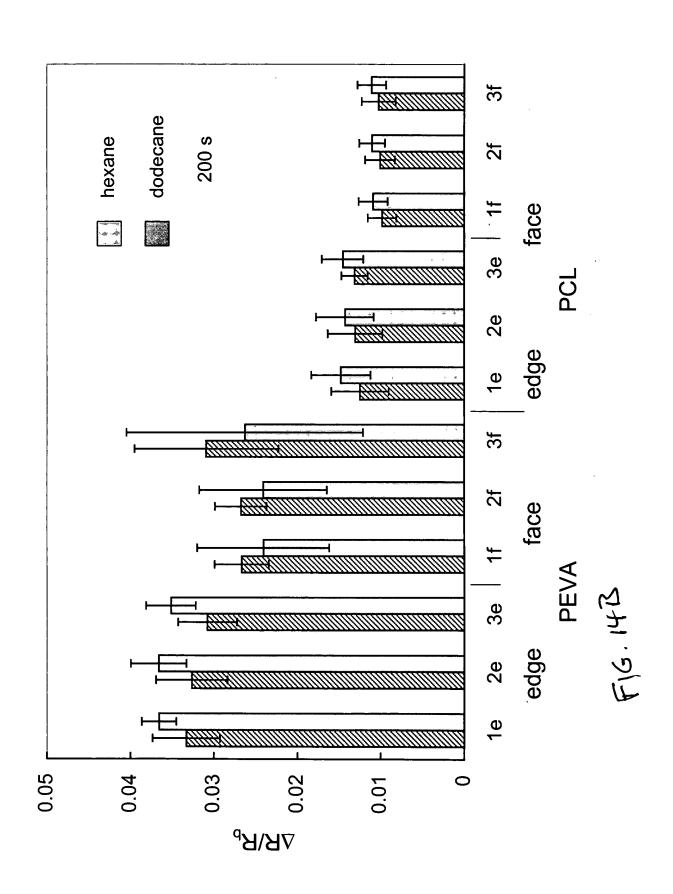












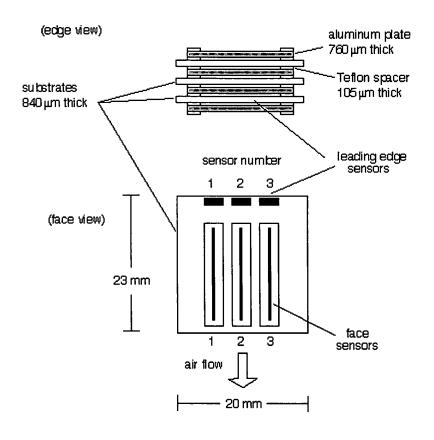
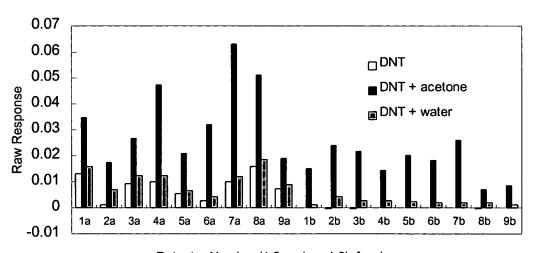


FIG. 15

## Raw Responses to Pure DNT Vapor Dilutions and DNT Vapor Dilutions Containing High Concentrations of Contaminant Vapors



Detector Number (1-9a edge, 1-9b face)

FIG. 16

## Extrapolated DNT Pattern in the Presence of High Concentrations of Contaminant Vapors

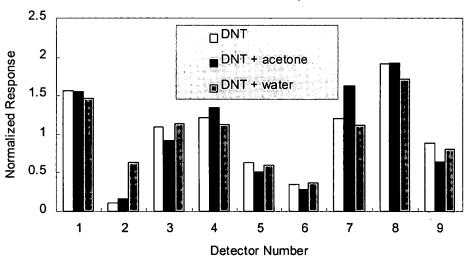


FIG. 17